Drone Warfare

DER EINZIGE
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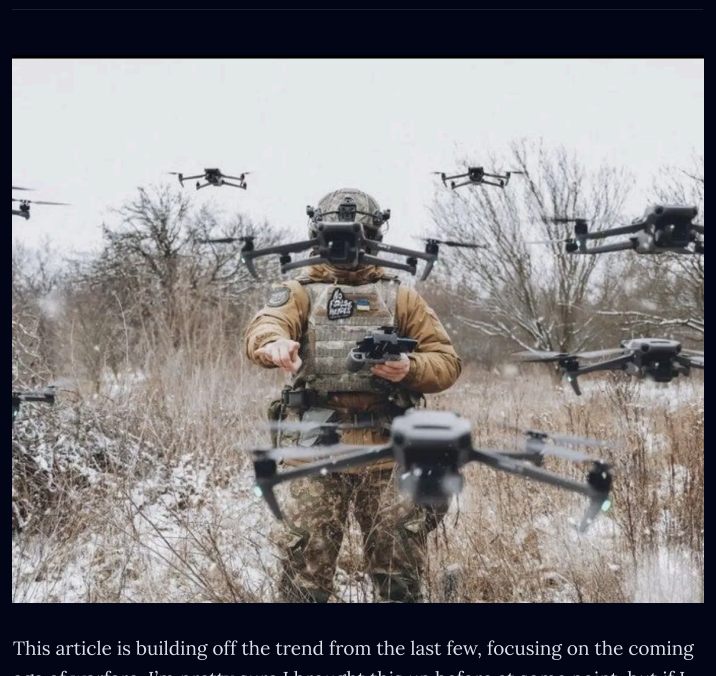


This article is building off the trend from the last few, focusing on the coming age of warfare. I'm pretty sure I brought this up before at some point, but if I didn't, I'm an Infantry drone operator in my day job. Basically everything drone or anti-drone related that's relevant to a rifle platoon is my specialty, including everything from quad-rotor FPVs to fixed wing ISTAR platforms. I'm trained for everything smaller than a RQ-21 Blackjack. I can't fly the big boys like the MQ-1 or -9, but I've worked with them & the functions of them are practically identical anyways.

I don't mean to flex credentials or anything, just giving some credibility to myself for this specific topic. I also asked around with friends in Ukraine (locals & foreign volunteers) for extra information & to confirm my own experiences.

To get one thing out of the way, before it inevitably gets brought up, no one cares what your opinion on drones are. You can bitch about them all you want, it won't stop you from getting blown in half. The same whining about drones could be seen whenever any military advancement is made from the longbow to the armored vehicle to the ATGM. I'd bet money that people were saying the same thing about mounted combat when the PIEs were cutting their heads off.

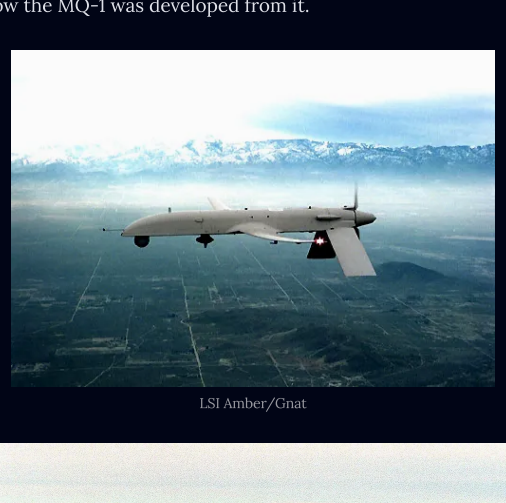
There's no morality in war, all that matters is whether you win or lose. Things like honor & courage are not simply higher virtues, they are practical qualities that work towards victory. We don't treat POWs humanely because it's the right thing to do, we do it so that the enemy does the same & isn't adverse to surrendering instead of fighting to the death. It's a purely practical matter, and any moralizing that gets in the way of combat effectiveness will inevitably disappear or lead to the defeat of the moralizers.

Any whining about drones is gay & useless, get with the times or get killed.

Now, a brief history of RC warfare. While there were several routes that led to modern UAS', the most significant is guided missiles - specifically ATGMs. These started out very simple, a wire connection between the missile & the launcher with a flare to track the missile through optics. This eventually led to systems like the Javelin which is entirely self guided once you lock on to a heat signature. I've long said that an FPV drone is essentially identical to an ATGM, just slower & easier to control, and this is why. It's effectively the same thing just controlled from gunner sight instead of first person - though some TV guided weapons were also first person all the way back in the 50's. This was effectively the beginning of what is today called an FPV drone.

The other major route was through reconnaissance aircraft. US reconnaissance can be traced back to aircraft like the U-2 Dragon Lady & SR-71 Blackbird. The general concept for both aircraft was the same, fly too high (& too fast, for the Blackbird) for enemy SAMs to take you down. The illusion of safety with the U-2 was broken during the Gary Powers shoot down, & it's successor was similarly broken down by the MiG-25s that could (in theory) track & intercept the Blackbird. Regardless of whether or not a Foxbat could actually take down a Blackbird, SAM & fighter technology had improved to a point where there was no way to actually avoid getting shot down. Thankfully, it also improved to a point where the imagery could be immediately sent back to command without needing to physically return & drop off film reels. This led to strategic reconnaissance becoming a job for satellites & leaving a gap for operational reconnaissance.

Enter the MQ-1 Predator. The Predator's development started in the 80's & was a combination of several development projects being run from DARPA to private industry to Israel. The first to be put into practice was the LSI Amber, which was later turned into the Gnat, used by the CIA during the late 80's & early 90's. The Gnat is a pretty crude system, but if you look at it it's pretty obvious how the MQ-1 was developed from it.



LSI Amber/Gnat

early production RQ-1

The Predator really needs no introduction, you've all seen it in video games, movies, or some shitlib complaining about it annihilating Pakistanis. The Predator signaled an acceptance of the futility of long range reconnaissance, they essentially created an aircraft that could be disposable. If it gets shot down, the intel is already transmitted & there's no pilot to recover. There's still some things onboard that we wouldn't want enemies getting ahold of, but if necessary we can write it off or hit the crash site with a cruise missile if push comes to shove.

The RQ-1 eventually became the MQ-1 once they added Hellfire missiles to it. Note that R means reconnaissance & m means general purpose, Q means unmanned, in US terminology. The addition of weapons to the Predator was a pretty game changing decision, even if it didn't really change much. The Hellfire is a weak weapon, only about 50lbs worth of explosives in a HEAT warhead. They're anti-tank missiles, designed to fly off of attack helicopters. The reason the Predator (and the C-130) got Hellfires is because the control equipment is very simple & versatile compared to other guided munitions. They're also pretty lightweight & precise.

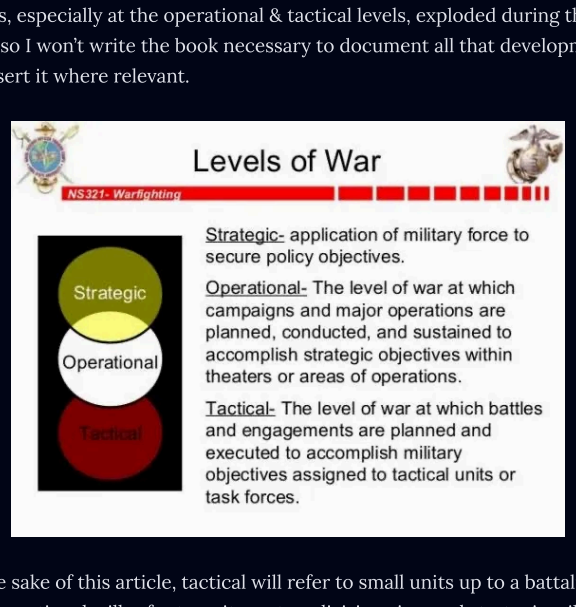
The Predator's weaponization became pretty controversial during the Obama admin but I don't deal in morality, besides it was actually pretty cool. The *Disposition Matrix* (awesome name btw), otherwise wise known as the 'Kill List,' was the assassination program of the US against Jihadis. If the target was wanted alive, or was important enough that the kill had to be confirmed, they sent in SOF units. For the lower level figures, they got a Hellfire through their roof courtesy of an unconcerned airmen in an air conditioned office. Much of the controversy was pretty stupid, as the alternative was an F-15 which would drop a JDAM with between five & twenty times as much explosive weight.

The Predator was phased out in favor of the newer MQ-9 Reaper. The Reaper is simply an upgrade, it fills the same niche & functions identically to the Predator. I will say that, despite superficial similarities, the inner workings of the Reaper are actually completely different. The MQ-4 Global Hawk (or Triton for the Navy) is very similar, just faster & higher altitude. It's notable for being the first major jet powered UAV. Another development was the RQ-170 Sentinel, which functions identically to the Global Hawk but is stealth. The Sentinel was shot down while flying over Iran by electronic warfare devices & reverse engineered into the Simorgh UAV.

The RQ-2 Pioneer is a good example of an operational level UAV. Generally used by division level commands for situational awareness & ISTAR*.

ISTAR means Intelligence, Surveillance, Target acquisition, & Reconnaissance.

Drones, especially at the operational & tactical levels, exploded during the late 2010's so I won't write the book necessary to document all that development. I will insert it where relevant.



Levels of War

NS321- Warfighting

Strategic- application of military force to secure policy objectives.

Operational- The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or areas of operations.

Tactical- The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces.

For the sake of this article, tactical will refer to small units up to a battalion size, operational will refer to units up to a division size, and strategic will be anything north of that. That's oversimplified & there's considerable overlap, but it gets the point across. After these three, I will touch on naval & ground based systems.

STRATEGIC

The strategic level is the larger aircrafts like those previously mentioned. They generally have very little use to actual combat units beyond providing intelligence, which I've already gone over earlier.

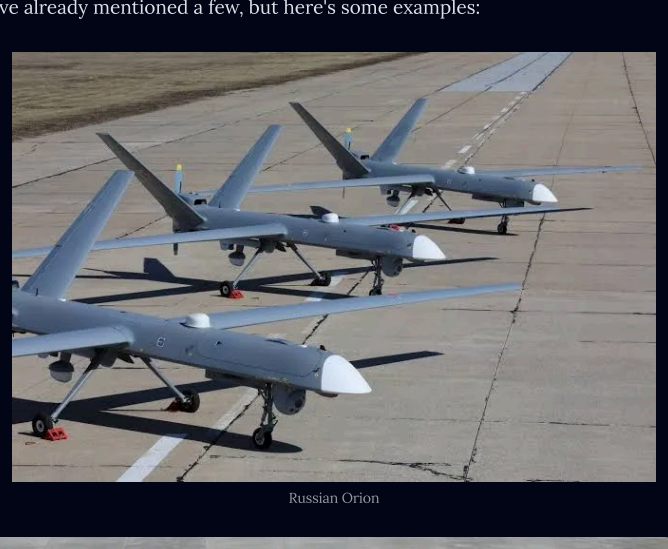
What is important is the roles these aircraft are moving towards. These bigger platforms are increasingly being used as platforms for communication & electronic warfare. Essentially, the drone operates as a signal relay. Transmissions go to the drone which sends them to the other radio operator. This eliminates the issues that come with over the horizon communications, functioning similar to AWACS platforms. This same concept can be applied to signal analysis* & radar tracking. The long loiter times & disposability of UAV systems make this more feasible than a fighter aircraft or an easily destroyed AWACS aircraft.

*Signal analysis is the art of combing through electromagnetic, radiological, or other signals to glean information. An example is tracking radio transmissions or cell phone pings, which give away your location regardless of encryption.

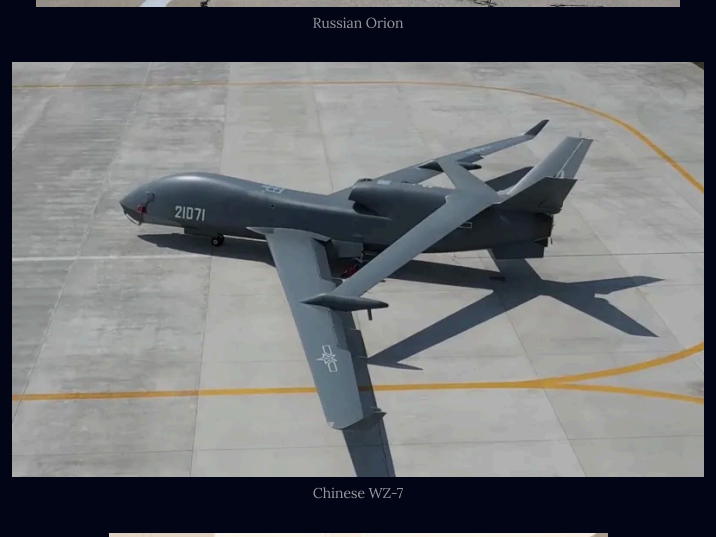
Another development is aircraft like the RQ-25 Stingray, which acts as a refueling aircraft which has a lot more survivability in a contested airspace. This came as reaction to aircraft like the J-20, which relies on destroying US refueling aircraft rather than facing F-35s head on. These systems are obviously much more versatile than a full sized MC-130, which is an extremely easy target for any SAM or fighter. The tradeoff is obviously that these aircraft carry very little fuel, but it's enough to keep a Raptor or a Lightning in the fight a bit longer or carry it home.

Another thing these craft could do is effectively replace cruise missiles. Ballistic missiles, such as the Tomahawk or Iskander, currently work by putting in a geolocation & course then launching. You're effectively blind, although this is often remedied by an observer drone to confirm the target & effects. A large FPV drone, such as the Tomahawk, effectively working like a predator missile in COD would make hitting specific targets easier - possibly making them useful at the tactical level as a safer alternative to air strikes.

I've already mentioned a few, but here's some examples:



Russian Orion



Chinese WZ-7

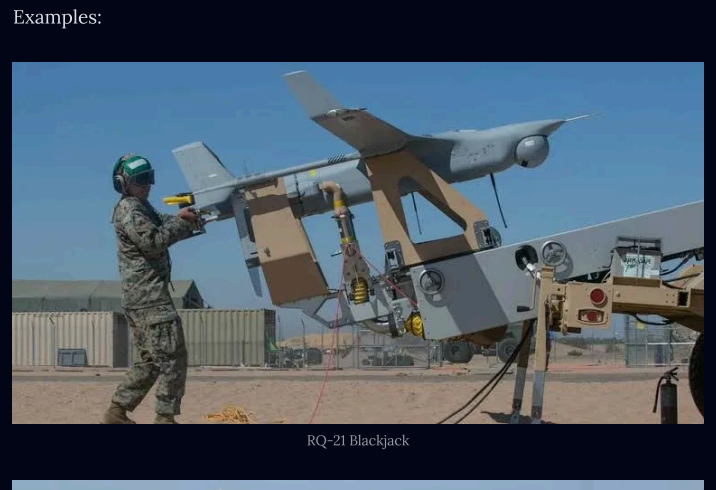
US RQ-170, also the basis of similar Iranian & Russian ripoffs.

OPERATIONAL

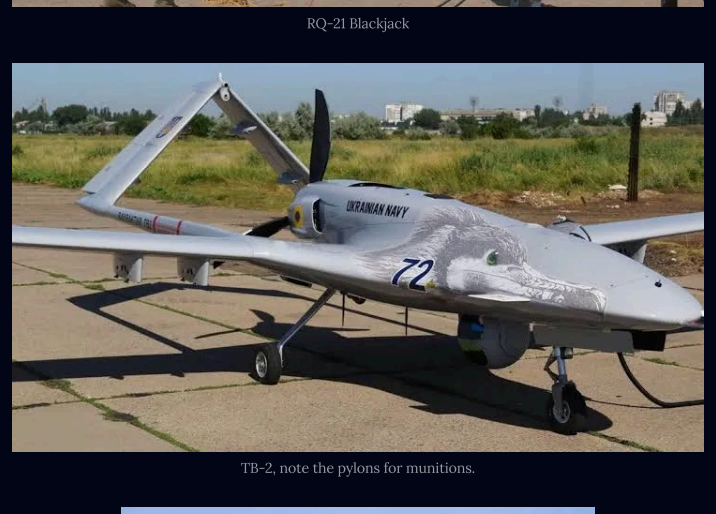
I'll be honest, operational level drones are boring. They're neither technologically impressive nor particularly lethal. These are almost always ISTAR platforms that provide mid-level commanders with real time battlespace awareness. They're often shot down, as they operate in a dangerous position & there's little increase to keep them alive anyway. Cheap & no technology/data worth recovering. Still, it's important to destroy these when you come across them in order to limit the enemy commander's decision making abilities & awareness. These are easily destroyed by small SAMs, high caliber machine guns, or smaller FPV drones.

These are the most likely to be utilized as communications relays.

Examples:



RQ-21 Blackjack



TB-2, note the pylons for munitions.

Forpost-R

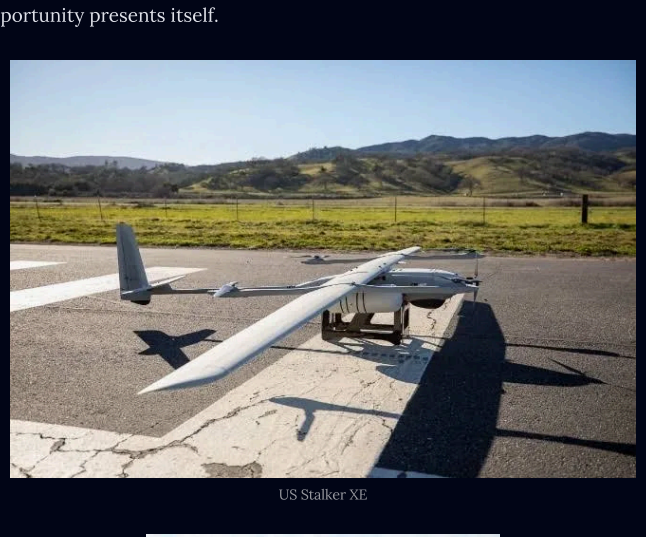
TACTICAL

This is the segment anyone reading actually cares about. This includes drones used at the battalion level or below, as well as any prospective insurgent groups. Unless there's any Colonels or above in my readership, this includes all of you.

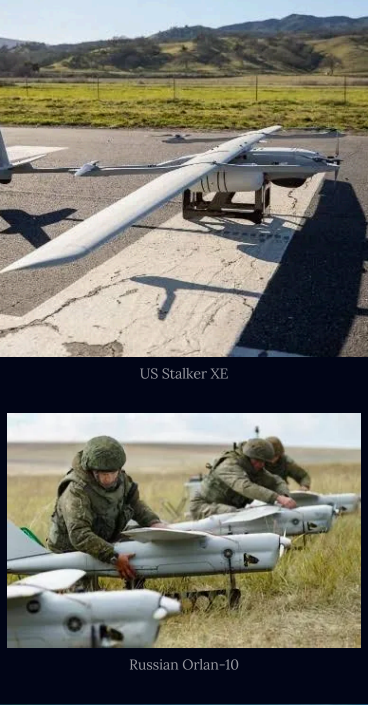
I'll start with ISTAR. These drones are used for immediate intelligence gathering in the general area around the unit, usually limited to about 10-20 miles max. Rather than any grand scale intelligence gathering, these drones generally focus on the specifics of the enemy such as disposition, equipment, movements, or tracking patrols. To some extent, these can supplement or even replace the regular foot patrols made by Infantry & Recon units on the ground.

They're also used to give the commander a live feed of what's happening on the ground, as opposed to looking at a map & getting info from frantic radio transmissions. You can observe several videos where these drones will actually give live feedback to the assault element on the ground by telling them what's behind corners, in the next trench, etc. Essentially the UAV killstreak. This goes from every level from the squad to the battalion.

It's generally not really worth taking these down. If you can see it, it saw you 20 minutes ago. They generally can't harm you but still take them out if the opportunity presents itself.



US Stalker XE



Russian Orlan-10

German Vector (personal favorite of all time btw)

Next, the FPV drones. FPV means first person view, but this has come to refer to any sort of "kamikaze" style drone & the droppers.

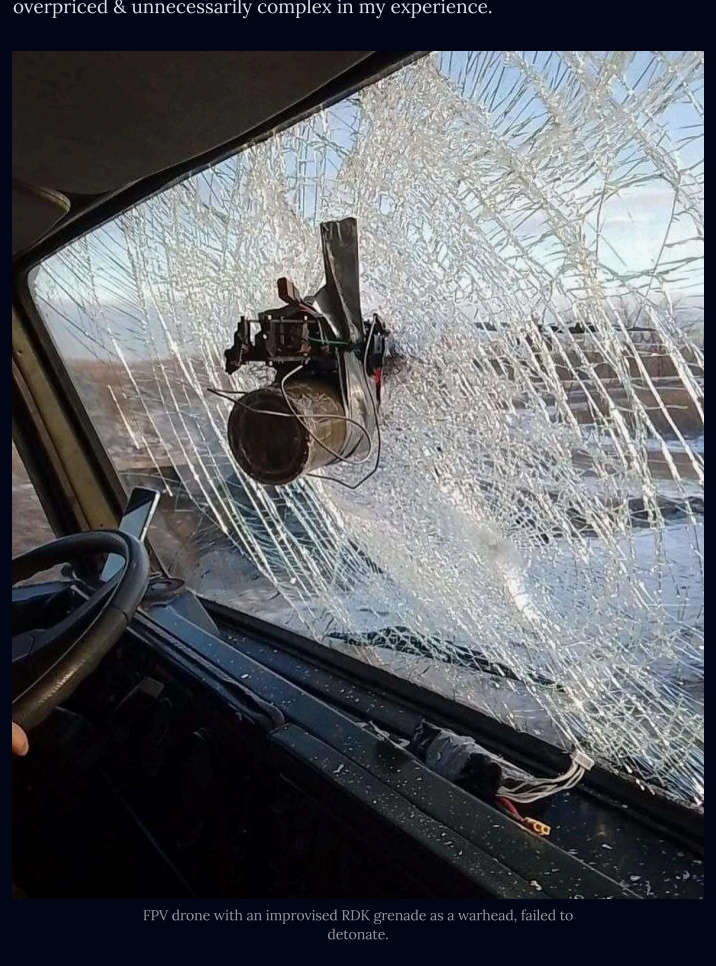
Droppers are simple, they've been used for about a decade now & were pioneered by the Islamic State during their battles in Raqqa & Mosul. They are generally propellor drones modified to carry an explosive, dropped directly on the heads of the enemy. These explosives can be literally anything, but are usually a 40mm grenade, 60mm mortar, or something similar. They really aren't as useful as one may expect. The amount of explosives they can carry is small, you have to virtually hit the target dead on to take them out. Combine that with the fact that it's very difficult to even hit what you're aiming at & the drone being easily shot down by rifle fire, it becomes clear that these aren't a massive issue. They're most often useful against rear echelon enemies that aren't paying attention or moving much, as well as harassing entrenched enemies (see: 'Combined Arms Dilemma).

This is why many of the videos you see of dropper kills are on targets sleeping in a trench or a tank with its hatches open & crew not paying attention. Complacency kills.

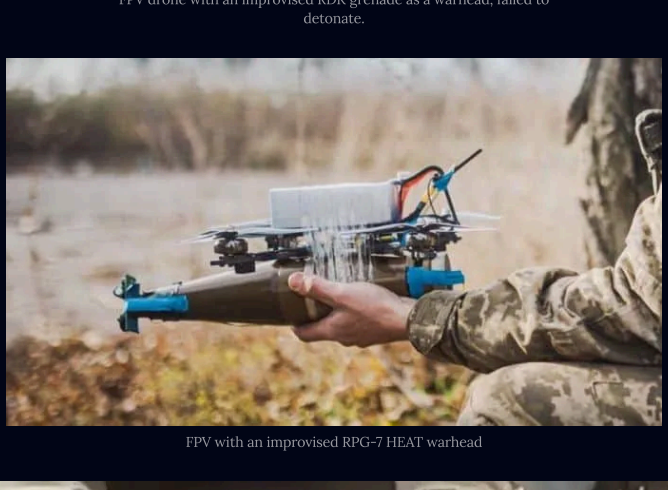
I won't include examples because literally any drone can do this. You can buy the attention that holds & drops cargo on Amazon for like $20. Many are literally basic DJI drones you can get a Walmart.

Kamikaze drones are similar, but instead of dropping their munitions they simply detonate on impact - as the name implies. It's much of the same story as the droppers, literally any drone can do this. Ukies are currently using 3D printed ones, the explosives are often a water bottle filled with C4 & ball bearings with an impact fuze on the cap. Alternatively, many use repurposed warheads for the explosives, such as an RPG-7 or a 125mm HEAT shell. This is common for the anti-tank variants.

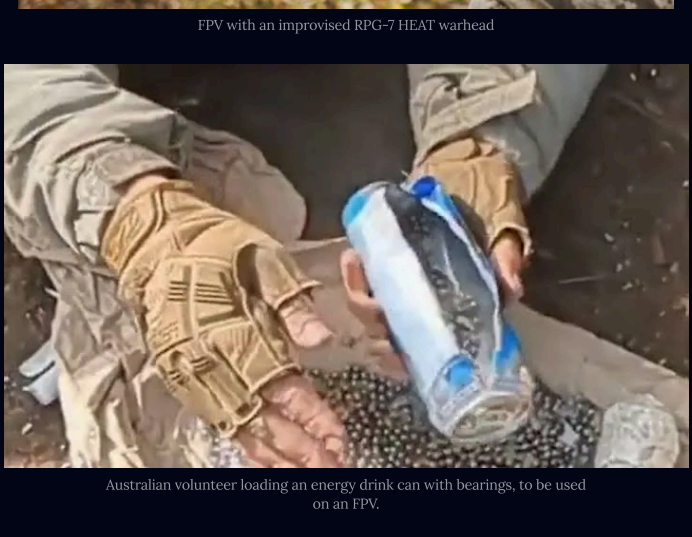
There are dome truly purpose built kamikaze drones, however they're overpriced & unnecessarily complex in my experience.



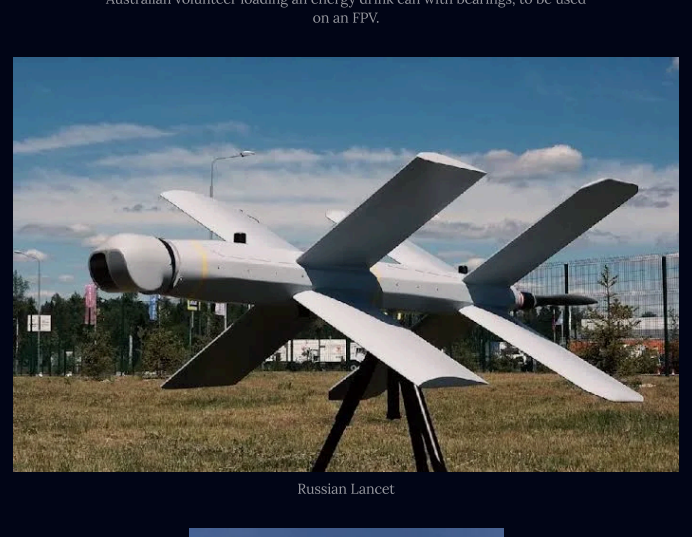
FPV drone with an improvised RDK grenade as a warhead, failed to detonate.



FPV with an improvised RPG-7 HEAT warhead



Australian volunteer loading an energy drink can with bearings, to be used on an FPV.



Russian Lancet

US Switchblade. The 300 model can be used against individual targets (claymore style warhead) & the 600 model has the same HEAT warhead as the Javelin missile. I fly this btw, extremely fun & effective if a bit overly expensive.

Russian Shahed, Iranian origin. This is a relatively large model for more operational & strategic strikes, but they come in various sizes with similar appearance.

To combat these, fucking move. Almost every video you see of some zigger getting split in half by an FPV drone is him just standing in an open field & watching it fly towards him. Shoot it, duck & roll, do something. It's not easy to hit a target with an FPV drone, especially if they're moving. According to my buddy over in the 12th Azov, their success rate (kill or wound) with FPVs is something like 20%. They usually miss or go down before they can hit a target. Just pay attention, they aren't quiet. The psychological effect of these systems far outweighs their actual lethality.

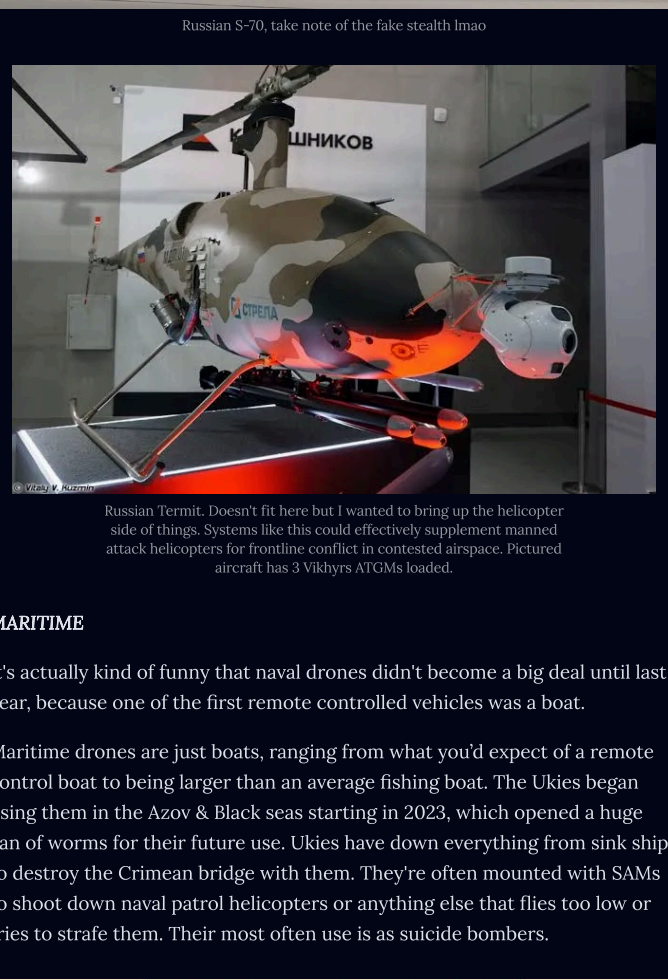
Units like the 3rd Separate Assault Brigade, 12th Azov Brigade, & the International Legion regularly post combat footage on YouTube. You can see how little of an impact these drones actually have in Infantry combat when you aren't being a retard.

As part of the tactical segment, I also want to touch on the 'Loyal Wingman' concept. LWs are essentially drones meant to operate alongside fighter aircraft like the F-35 or F-22. They usually carry an extra two missiles & have protocols to take a hit for their manned comrade, meaning acting like Marine One & blocking the enemy missile. The thing with loyal wingmen is that no one actually wants them, it's overly complex. What they do offer, however, is a standalone platform that may showcase the future direction of fighter aircraft. These systems are basically full sized aircraft & can operate about as well as an F-35, just with less ammo & more susceptible to electronic warfare. Regardless, they could bolster the manned aircraft in an era where pilots take upwards of 6 years to train & can be killed within seconds of entering the battlespace.

Australian MQ-28 Ghost Bat, the principal LW right now. Capable of fully autonomous strike missions using AI.

US XQ-58 Valkyrie

Russian S-70, take note of the fake stealth lmao

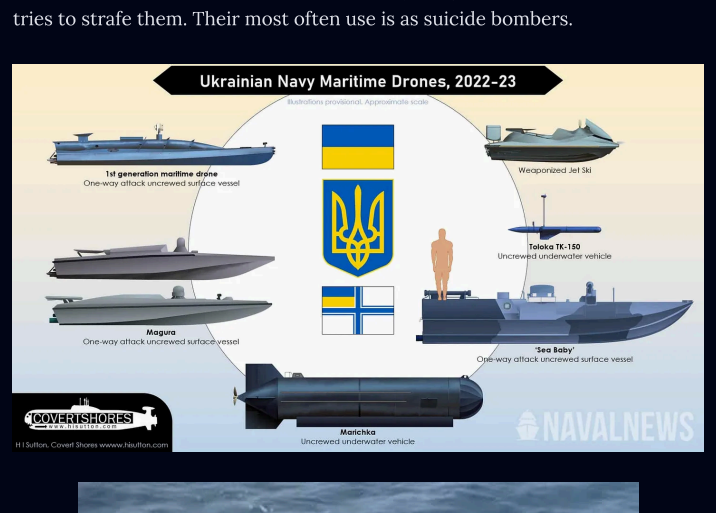


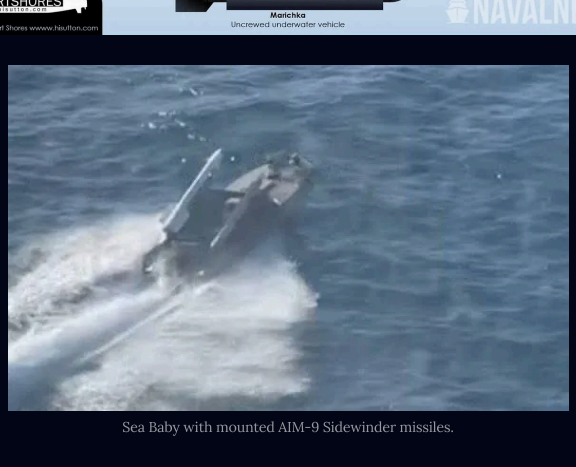
Russian Termit. Doesn't fit here but I wanted to bring up the helicopter side of things. Systems like this could effectively supplement manned attack helicopters for frontline conflict in contested airspace. Pictured aircraft has 3 Vikhyrs ATGMs loaded.

MARITIME

It's actually kind of funny that naval drones didn't become a big deal until last year, because one of the first remote controlled vehicles was a boat.

Maritime drones are just boats, ranging from what you'd expect of a remote control boat to being larger than an average fishing boat. The Ukies began using them in the Azov & Black seas starting in 2023, which opened a huge can of worms for their future use. Ukies have down everything from sink ships to destroy the Crimean bridge with them. They're often mounted with SAMs to shoot down naval patrol helicopters or anything else that flies too low or tries to strafe them. Their most often use is as suicide bombers.





Sea Baby with mounted AIM-9 Sidewinder missiles.

A big issue with submersible drones is that water is very good at stopping radiation, and therefore also good at stopping radio waves that are used to control drones. There are submersible systems, but they aren't deep enough to give them an edge over standard maritime systems.

Another use for these drones is as active sonar platforms. They can be sent off to make a ping, relay that information back to the fleet, and then get destroyed without consequence. This means that manned warships don't have to expose themselves with sonar or go in blind using passive sonar.

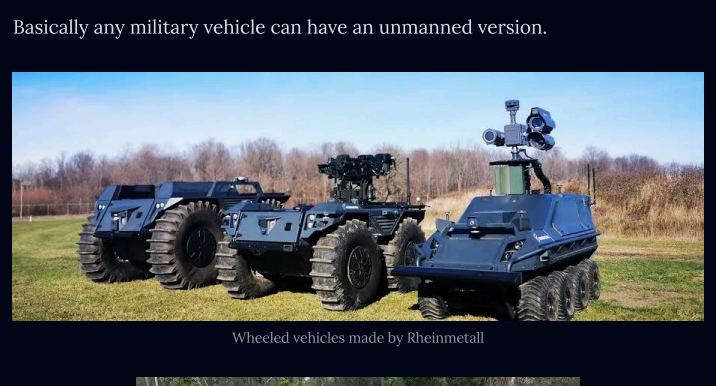
GROUND

UGVs are, interestingly, the last aspect of unmanned vehicles to be developed. Unmanned vehicles sort of went backwards in their development. Space, air, water, then land.

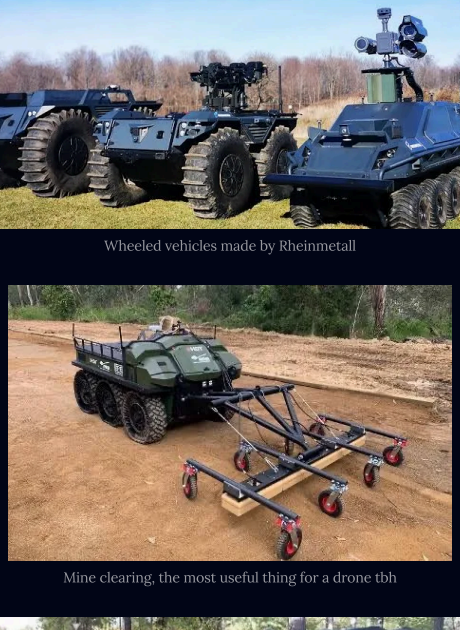
Regardless, the UGV realm will likely grow in the coming years. The trend towards making tanks unmanned has been going for decades, making the turret unmanned was only the start. The big argument against unmanned armored vehicles is that it doesn't have a crew to do things like repair tracks, switch to analog optics when primary optics fail, etc. The counter argument to that is tank crews can't either, from personal experience. The recovery crew has an equal amount of work set out for them.

Regardless, MBTs aren't going to get replaced by drones. Drones will fill the niche of infantry fighting vehicles. The systems that exist now are far smaller & more maneuverable than something like a Marder or a Bradley. Doesn't really matter in an open field but it's pretty useful in compartmentalized terrain. The larger UGVs have pretty comparable firepower to AFVs.

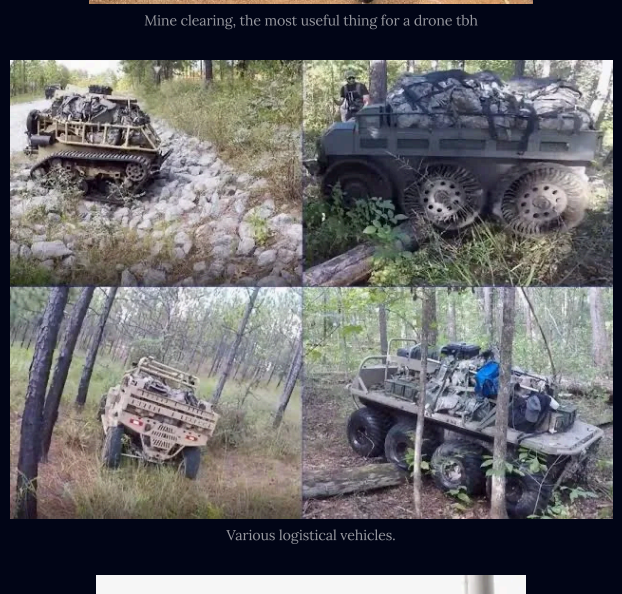
Basically any military vehicle can have an unmanned version.



Wheeled vehicles made by Rheinmetall



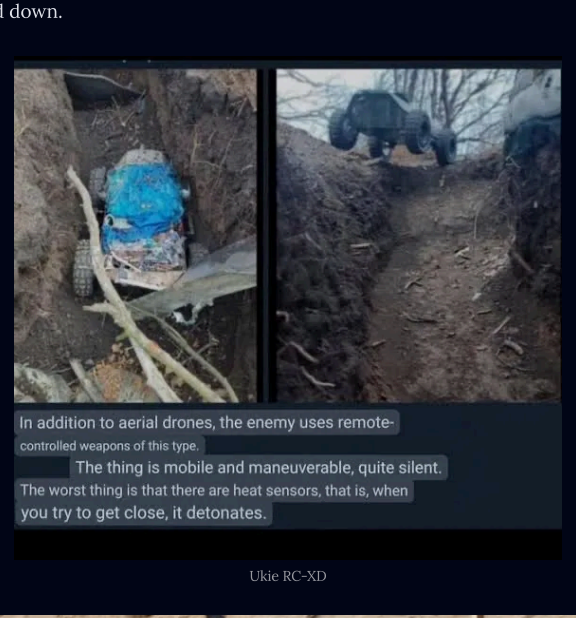
Mine clearing, the most useful thing for a drone tbh



Various logistical vehicles.

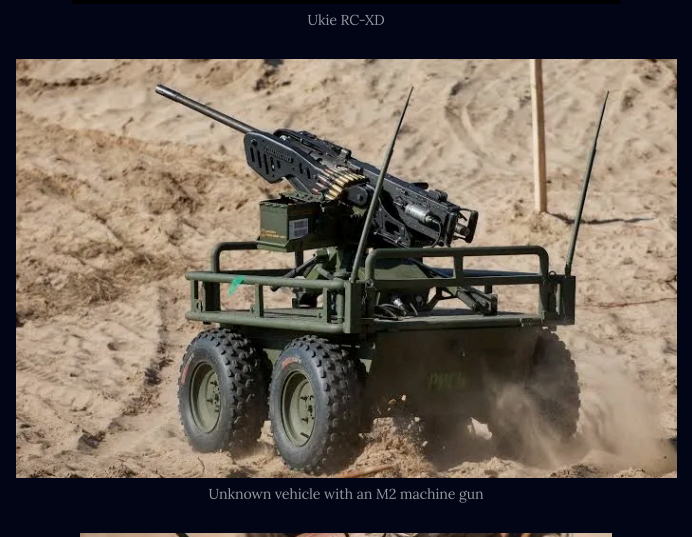
Uran-9

Aside from that, smaller systems are also finding use. This shouldn't be a surprise, COD predicted it with the RC-XD in 2010. Aside from that, theirs also vehicles with firearms, rockets, or even missiles on board that are small & stealthy. These can be used by Infantry units outflank & destroy armor while pinned down.

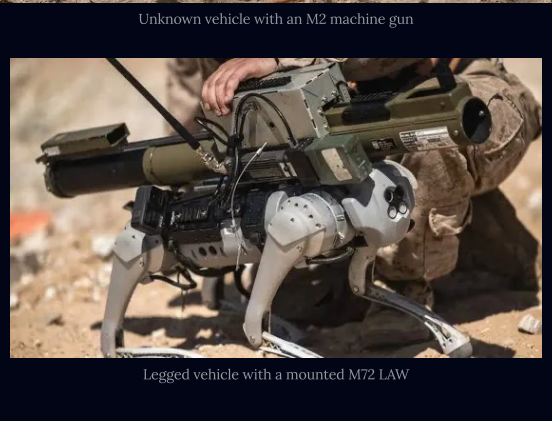


In addition to aerial drones, the enemy uses remote-controlled weapons of this type.
The thing is mobile and maneuverable, quite silent.
The worst thing is that there are heat sensors, that is, when you try to get close, it detonates.

Ukie RC-XD



Unknown vehicle with an M2 machine gun



Legged vehicle with a mounted M72 LAW

Ground based systems are combated the same way as anything else, bullets & explosives. EW also still applies to them.

SWARMS

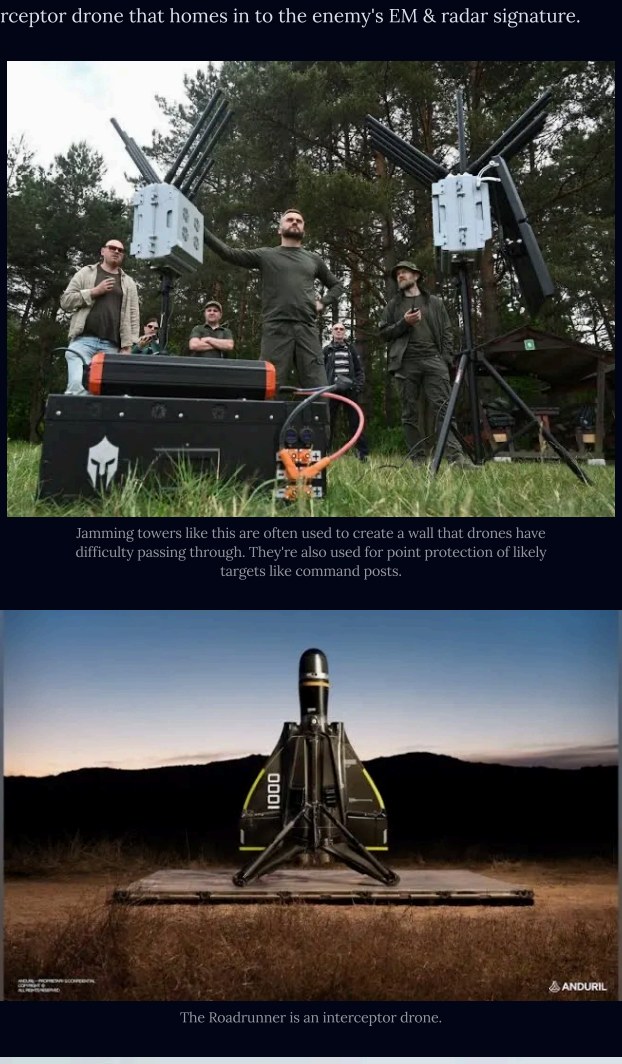
Drone swarms have become a sort of boogeyman in the military, the reality really isn't that scary. Swarms rarely target military targets, they are virtually always aimed at civilian infrastructure like oil refineries, factories, things like that. It's the same mindset as strategic bombing. You probably won't see any Black Ops II style hunter killer swarms used in a tactical manner, it's overly complex & pretty easy to combat with basic EW.

This may be an emerging threat in the realm of terrorism, but I wouldn't worry about it as an infantryman or insurgent.

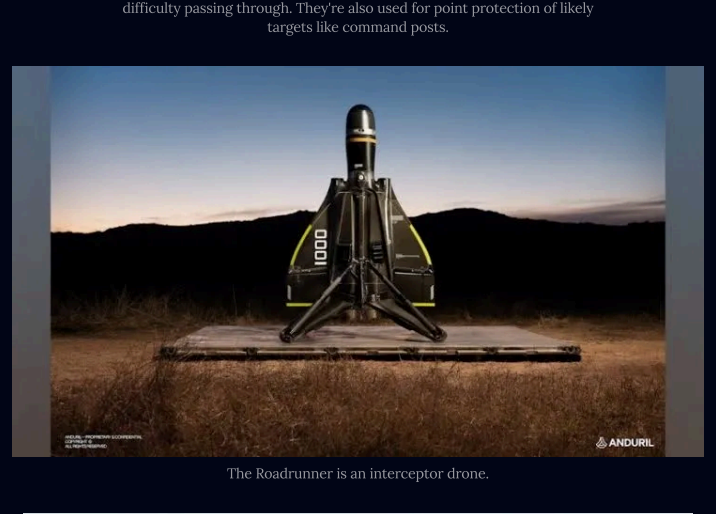
Counter Drone

There's a plethora of ways to combat drones, like simply shooting them down. Many units are using shotguns with birdshot or buckshot rounds in grenade launchers to make this easier. Basically every squad has a drone detector so that they at least know when one is close.

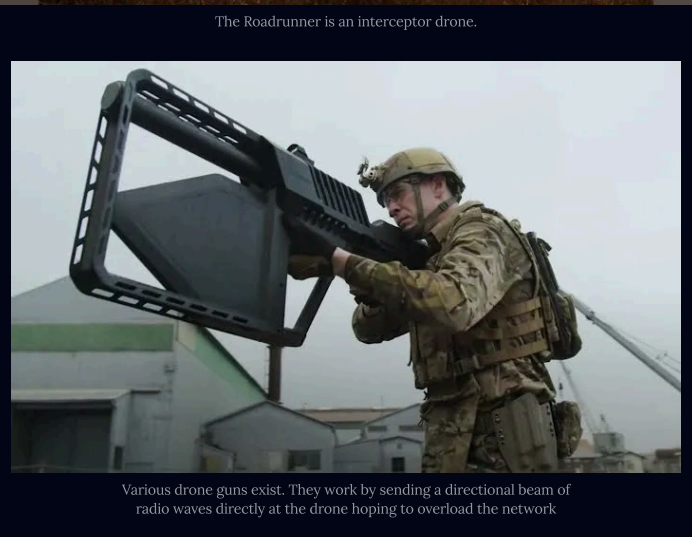
Jamming is the easiest way to counter drones. A lot of systems the US developed to counter IEDs are seeing action again. The THOR system effectively creates a bubble around it where there's no chance of radio waves coming through without massive interference. This sort of brute force approach isn't super common, as it's very energy intensive & inhibits radio communications, but it is an option if need be. The other method is emerging systems which can track the frequency the drone operates on & jam it specifically, focusing its signal towards the drone to increase effectiveness. A final option is using another drone to destroy the enemies, a small & fast interceptor drone that homes in to the enemy's EM & radar signature.



Jamming towers like this are often used to create a wall that drones have difficulty passing through. They're also used for point protection of likely targets like command posts.



The Roadrunner is an interceptor drone.



Various drone guns exist. They work by sending a directional beam of radio waves directly at the drone hoping to overload the network

To conclude, don't expect any grandiose changes to the nature of warfare because of drones. An unmanned aircraft is still just an aircraft, and an FPV drone is ultimately not much different than any other guided munitions. Drones are just another tool, and should be taken advantage of at every opportunity. Whats really important is how useful they are for insurgent groups fighting on the wrong side of an asymmetric battlefield. It's effectively evened the playing field after the cold war put a massive technological gap between developed national militaries & non-government or third world combatants.

Hail Victory.

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Layne A. Jackson Oct 25
Liked by Der Einzige

Good article, but wanted to touch on the morality part. I think there's a difference between the "brother war" and "clash of civilizations" type conflicts where people are more or less inclined to use weapons like FPVs. The ACW, which had almost 100% overlap, saw many moments where soldiers refused to act inhumanely. Jünger, as I'm sure you know, wrote about not being "unsporting" with the British by spamming grenades unless they did first.

An example of the opposite are the Crusades, or the Pacific Theater of WWII. Both of these fomented racism toward the opponents that had almost nothing in common with them.

All that to say, being unsporting in a brother war is almost always a long-term negative proposition. Doing stuff like executing POWs is an overall net negative to your war effort. Similarly, seeing the opps treat you kindly can be demoralizing in a weird way. This is why Chinese POW camps during the Korean War were so effective.

One last example: After Alfred the Great twerked on the Great Heathen Army, he offered extremely liberal parole and forgiveness. Even to the officers of the GHA. He even took the leader, Guthrum, as his own godson! This is I think far more universally demoralizing to a group like the GHA than might initially appear. Especially because they betrayed Alfred and their oaths like 5 times.

TLDR: it's in your best interest to act humanely in a brother war

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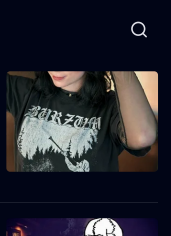

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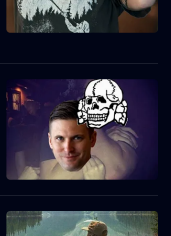

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